

WIND RIVER IRRIGATION PROJECT, JOHNSTOWN DIVERSION
STRUCTURE
(Johnstown Unit)
Wind River Indian Reservation
Fort Washakie vicinity
Fremont County
Wyoming

HAER WY-95-B
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
INTERMOUNTAIN REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
12795 West Alameda Parkway
Denver, CO 80228

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WIND RIVER IRRIGATION PROJECT, JOHNSTOWN DIVERSION STRUCTURE (Wind River Irrigation Project, Johnstown Unit)

HAER No. WY-95-B

I. INTRODUCTION

Location: The Johnstown Diversion Structure lies along the right (south) bank of the Big Wind River, approximately three miles southwest of the town of Kinnear, Wyoming. The structure is located within the Johnstown Unit, Wind River Irrigation Project, Wind River Indian Reservation, Fremont County, Wyoming.

Quad: Pavillion, Wyoming

UTM: Zone: 12; Easting 684583; Northing 4780090

Date of Construction ca. 1898

Present Owners: United States Government

Present Use: The Johnstown Diversion Structure is presently inoperable. The intended use is to divert water from the Big Wind River into the Johnstown Canal.

Significance: The Johnstown Diversion Structure is an original component of the Johnstown Canal that diverts water from the Big Wind River and carries the water into the Johnstown Canal. The Johnstown Canal was constructed initially by Shoshone Indian labor in 1898. The Johnstown Canal was one of two operating irrigation canals within the Wind River Indian Reservation when the Wind River Irrigation Project began in 1905.

Historian: Joan L. Brownell
Billings, MT
January 2009

II. HISTORY

In 1894, the U.S. government granted the first authorized expenditure for irrigation construction on the Wind River Indian Reservation. This expenditure resulted in the construction of the Ray Canal (today a component of the Little Wind River Unit). By 1895, the Ray Canal extended for 10 miles. After 1895, several other efforts to construct irrigation ditches within the reservation were attempted but never completed.¹

The Johnstown Canal was the second irrigation canal after the Ray Canal built on the Wind River Indian Reservation. In 1898, under the direction of Captain Herman Nickerson, Indian Agent for the Wind River Indian Reservation, the Shoshone Indians constructed the Johnstown Canal at a cost of approximately \$1500.00. The U.S. government paid the Shoshone Indians \$1.50 per day for hand labor and \$2.50 per day for a man and horse team. The Shoshone Indians received payment from the government divided into one-half cash and one-half rations and implements.²

The Johnstown Canal (formerly known as Johnstown Ditch) heads at the Johnstown Diversion on the right bank of the Big Wind River. The Johnstown Unit is the smallest irrigation unit within the Wind River Irrigation Project and has one main canal. In 1905, the length of the canal was 5.6 miles. In 1907, an extension of the Johnstown Canal was initiated. In 1939, the Johnstown Unit reportedly was near completion requiring only the construction of some laterals. At this time, the Johnstown Unit was six miles long with two miles of laterals and irrigated 1,037 acres of both Indian and non-Indian lands. By 1968, the Johnstown Unit canal and laterals extended for 9.2 miles of with 89 structures.³

III. ARCHITECTURAL DESCRIPTION

The Johnstown Diversion Structure is an irrigation facilities component of the Johnstown Unit within the Wind River Irrigation Project (Figure 1). It diverts water from the Big Wind River into the Johnstown Canal. The Johnstown Diversion is necessary for the Johnstown Canal to operate.

¹ Blain Fandrich, *The Wind River Irrigation Project: A Class 1 Overview of Irrigation on the Wind River Reservation, Fremont County, Wyoming*, Prepared for Cooper Zietz Engineers, Battle Ground, WA by Ethnoscience, Inc., Billings, MT, 2007, 8-9.

² Wilbur S. Hanna, *Project History, Wind River Irrigation Project, Wyoming*, Indian Irrigation Service, on file, Rocky Mountain Region Library, Bureau of Indian Affairs, Billings, MT, 1916, 139.

³ Henry Clotts, *Wind River Irrigation Project History and Irrigation Data 1939*, manuscript on file, Rocky Mountain Region Library, Bureau of Indian Affairs, Billings, MT, 1939, 14-15; Fandrich, *Wind River Irrigation Project*, 14; United States Department of the Interior, Bureau of Indian Affairs, *Wind River Irrigation Project Wyoming 1968*, Billings Area Office, Billings, MT, 1968, 51.

The Johnstown Diversion Structure lies on the right (south) bank of the Big Wind River. An access road approaches the diversion from the east and terminates at the diversion. The headgates are confined in the headwall. They control the water supply into the canal, although they are presently inoperable with only skeleton cast iron framing and one threaded stem remaining. The 3'-5" x 3'-5" slide gate openings originally allowed passage of water from the Big Wind River into the canal through two 30" concrete culverts that extend an approximate 50' from the gate openings to the outlet into the canal channel. It is inferred that, due to the steep bluffs immediately south of the Big Wind River, the culverts bend and then straighten to emerge from the outlet into the canal. A recent earthen cofferdam has been installed at the mouth of the culvert into the canal. Today temporary berms are constructed to divert the water into the canal for irrigation.

The diversion headwall holds the regulating headgates and provides bank protection. The Johnstown Diversion headwall consists of five one-foot wide concrete wall segments that are all leaning precipitously away from the river bank. The upstream side wing extends 15'-0" at an approximate 40 degree angle into the river bank. The two headgates are confined in a 36'-0" concrete headwall which is aligned with a second 36'-0" wall immediately downstream. These wall segments both display steel plates installed to prevent further wall cracking. A 46'-0" wall segment extends at the bank downstream from these walls. A 16'-0" slanted wing wall flares outward and completes the headwall.

IV. MODIFICATIONS

It is possible that modifications to the Johnstown Diversion Structure have occurred since its construction in 1898. However, there is no available record of any modifications. Routine maintenance and repairs have also been ongoing.

V. OWNERSHIP AND FUTURE

The U.S. Government has maintained ownership of the Johnstown Diversion Structure within the Johnstown Unit, Wind River Irrigation Project, since its construction.

The rehabilitation of the Johnstown Diversion is part of the BIA Irrigation Rehabilitation effort addressing operation and maintenance problems of the Wind River Irrigation Project. This is a multi-year project with plans to return various irrigation systems throughout the Rocky Mountain Region to fully functioning systems.

The rehabilitation of the Johnstown Diversion reflects a replacement in kind where existing features will be replaced by like features. The existing headwalls will be demolished and replaced with new headwalls in basically the same location. The existing 3'-5" slide gates will be removed with new 3'-0" slide gates installed. The existing 30" concrete culverts will be demolished and replaced with 36' reinforced concrete pipe (RCP). The existing outlet headwall will be demolished and a new headwall installed.

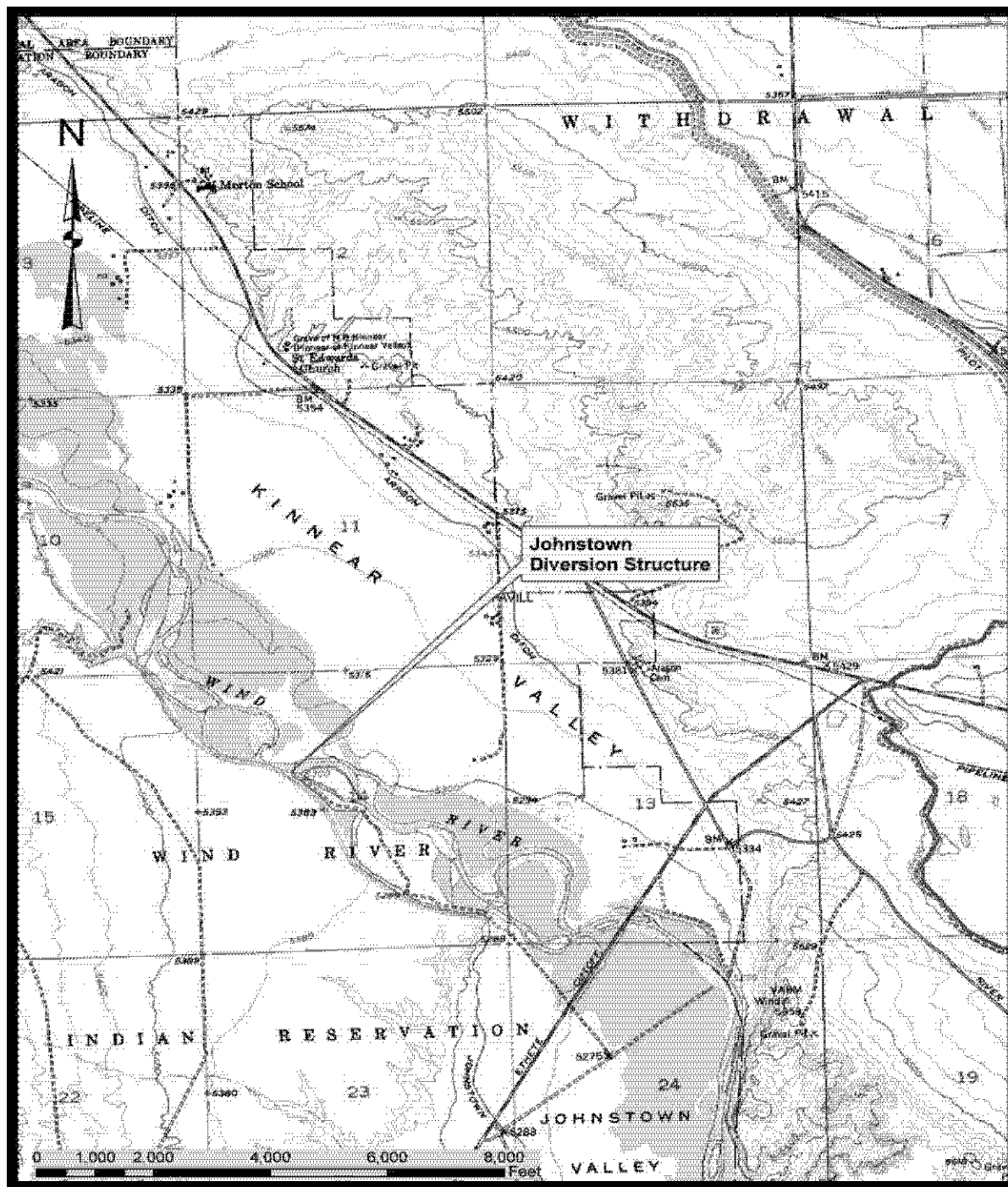


Figure 1. Johnstown Diversion Structure location.

VI. BIBLIOGRAPHY

Aisenbrey, A. J., Jr.; Hayes, R. B., Warren, H. J.; Winsett, D. L.; and Young, R. B. *Design of Small Canal Structures 1974*. U.S. Department of the Interior Bureau of Reclamation. Denver, CO, 1974.

Clotts, Henry. *Wind River Irrigation Project History and Irrigation Data 1939*. Manuscript on file, Rocky Mountain Region Library, Bureau of Indian Affairs, Billings, MT, 1939.

Etcheverry, B. S. *Irrigation Practice and Engineering Vol. III. Irrigation Structures and Distribution System*. New York: McGraw-Hill Book Company, 1916.

Fandrich, Blain. *The Wind River Irrigation Project: A Class I Overview of Irrigation on the Wind River Reservation, Fremont County, Wyoming*. Prepared for Cooper Zietz Engineers, Battle Ground, WA by Ethnoscience, Inc., Billings, MT, 2007.

Hanna, Wilbur S. *Project History, Wind River Irrigation Project, Wyoming, 1916* Vol. 1. Indian Irrigation Service, on file, Rocky Mountain Region Library, Bureau of Indian Affairs, Billings, MT, 1916.

HKM Engineering. *Engineering Evaluation of Existing Conditions, Wind River Condition Assessment*, drawings and data on file, Rocky Mountain Region, Bureau of Indian Affairs, Billings, MT, 2008.

Inberg-Miller Engineers. *Wind River Irrigation Rehabilitation Project*, drawings on file, Rocky Mountain Region, Bureau of Indian Affairs, Billings, MT, 2008.

Nation, Ray. Phone Interview with Joan L. Brownell. January 23 and 27, 2009, Fort Washakie, WY.

United States Department of the Interior. Bureau of Indian Affairs. *Wind River Irrigation Project Wyoming 1968*. Billings Area Office, Billings, Montana, 1968.